

power-tec

Product Guide

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The complete disc solution

Thank you for choosing Power-tec to meet your storage needs!

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- New features list.
- Device driver origination for unusual SCSI devices.
- On-line versions of the latest Power-tec Manuals.
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Alsystems

Ultra SCSI III interface
Serial No. PTS3-203098
Software V 1.73
Firmware 22/10/97 Hardware V 2.01

power-tec

Product Guide for the SCSI-1, SCSI-2 and generic SCSI-2
and SCSI-3 interfaces for Acorn Computers.

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Introduction

First of all, thank you for choosing a Power-tec product. This manual covers all the SCSI-2 and SCSI-3 interfaces for Acorn computers, and also the older 8-bit and 16-bit SCSI-1 products.

Free technical support

Complete and return your registration card to us and you can call our technical support line weekdays from 1.00 - 5.00 pm free of charge for 90 days from date of purchase. During this time if any software upgrades are released you will receive these automatically without cost. Up-to-date information on these products is available from our Web Site at:

<http://www.alsystems.co.uk>

You can extend the period of technical support and upgrades to a full 12 months - see your registration card for details.

Inclusions

Included in your 8-bit SCSI-1¹ interface pack are :

1 x SCSI-1 8-bit interface

2 x Securing screws

Included in your 16-bit SCSI-1¹ interface pack are :

1 x SCSI-1 16-bit interface card

2 x Securing screws

1 x Half width blanking plate, T Piece & 2 screws

Included in your SCSI-2 or -3 interface pack are :

1 x SCSI-2 or -3 interface card

1 x 50-way SCSI ribbon cable

(The generic SCSI card is C E Approved)

All products also include :

1 x internal SCSI ribbon cable

1 x Product Guide

1 x Owner Registration Card

1 x CDFS Support Disc) these may be on

1 x Utilities Disc) one HD disc

If any of the above items are missing, please contact your supplier.

¹ *These product are now obsolescent - Oct 97*

Firmware & Software

This version of the manual is based on firmware in the on-board EEPROM dated 8Oct97; with utilities !PowerMgr v 1.73 dated 15Oct97, !Backup v0.31 dated 5Oct97 and !Speed v1.22 dated 5Oct97 supplied on a Support disc. The actual release dates of the products supplied are on the label below, and the disc includes Log files containing brief details of recent software changes.

The firmware includes CDFS v2.21, and related modules, to give CDROM facilities, provided under licence from Acorn Computers Ltd. Your RISC OS ROMs may include more recent versions of these modules, in which case they will be used.

Serial Number

The interface card supplied has a unique serial number, as on the label below. Please be prepared to quote this over the telephone if you require support.

Ultra
SCSI III
Power-tec

Serial No. PTS3-203098

Software v1.73

Firmware 22nd Oct 1997

Hardware v2.01

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Installation A3000 series

Installation

Installing your 8-bit SCSI interface is a straightforward task. Read the section applicable to your computer and Chapter 6 before commencing. Remember all computers use static sensitive components to function so handle the interface card by the edges and avoid unnecessary touching.

Warning

Before installing your SCSI interface ensure that your machine is both switched off and unplugged from the mains to avoid risk of electric shock.

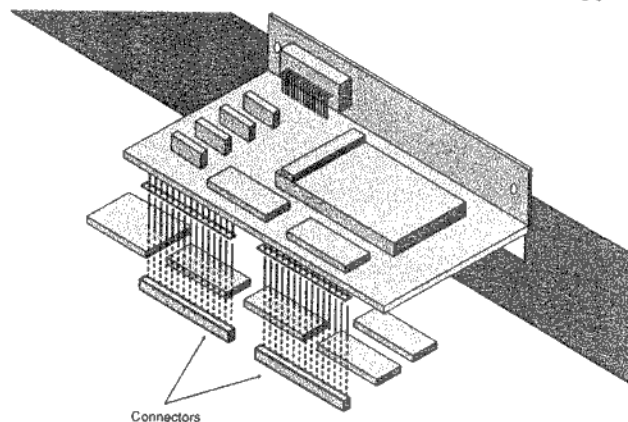
If you are in any doubt about fitting this product please consult your supplier.

Installation A3000

Disconnect the computer from the mains supply and all peripherals. Loosen and slide out the retaining screws at the rear of the computer that are located at the top left and top right edge of the case.

Gently rotate the computer and place upside down. Locate the centre recessed securing screw on the underside of the machine and remove using a cross-headed screwdriver. With a flat-bladed screwdriver, loosen the three securing clips at the front lip of the case. Holding the keyboard in place, turn the computer the right way up and push out the securing clips at the rear of the case. You can then carefully remove the lid and place to one side.

Viewing the computer from the front, you can now locate the position your SCSI interface will occupy :



Remove the blanking plate from the rear of the computer, secured by two screws in the centre of the rear of the case. Align the pins on the undersurface of the interface with the corresponding sockets on the motherboard.

Carefully check all pins are aligned and press firmly into place. Once fitted, the hard disc unit when viewed from the rear of the computer should align horizontally with the top edge of the case. Locate the securing screws in the holes provided and gently tighten until firm.

Hold the lid of the computer in position at approximately 25° and locate the front securing clips. Rotate the lid into the closed position making sure the rear securing clips are engaged.

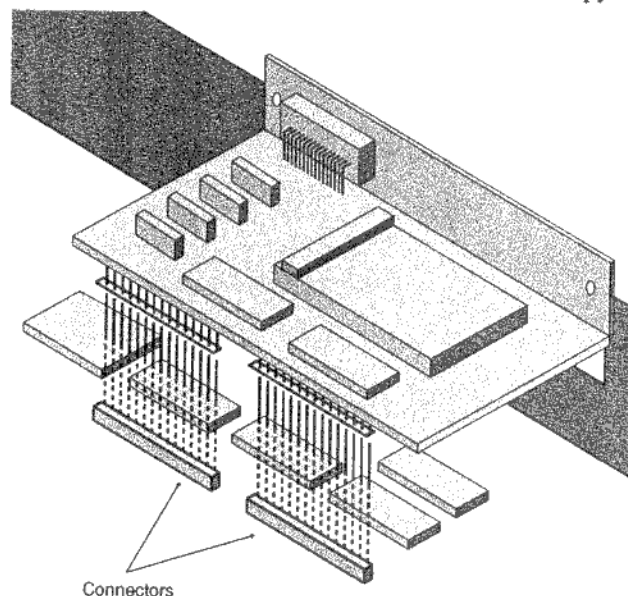
Gently turn the computer upside down and re-fit the centre securing screw. Gently rotate the computer once again re-fitting the rear retaining screws and re-connect the monitor and mouse cables. Connect the computer to the mains supply and switch on.

Now read Chapter 7 - Setup.

Installation A3010

Disconnect the computer from the mains supply and other peripherals. Turn your A3010 computer over onto a soft surface with the keyboard towards you. Remove the three screws along the front edge with a cross-head screwdriver and place to one side. Carefully turn the machine back over and gently lift up the front lip of the lid. As the lid is lifted, "hooks" at the back will disengage and the lid can then be placed to one side.

Viewing the computer from the front, you can now locate the position your SCSI interface will occupy :



Remove the plastic blanking plate from the rear of the computer. Remove the inner metal blanking plate also from the rear of the computer. Align the pins on the undersurface of the interface unit with the corresponding sockets on the motherboard.

Carefully check all pins are aligned and press firmly into place. Once fitted, the hard disc unit when viewed from the rear of the computer should align horizontally with the top edge of the case. Locate the securing screws in the holes provided and gently tighten until firm.

Note :

On A3010 machines there are additional sockets on the motherboard left unused by this upgrade

Hold the lid of the computer in position at approximately 45° and locate the rear "hooks". Rotate the lid into the closed position making sure the rear "hooks" are engaged by squeezing the rear edge together.

Holding the lid closed, turn the computer upside down and re-fit the three screws at the front lip. Gently rotate the computer once again and re-connect the monitor and mouse cables. Connect the computer to the mains supply and switch on.

Now read Chapter 7 - Setup.

Notes

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Installation A300/400 and 540 series

Installation

Installing your SCSI interface is a straightforward task. Read the section applicable to your computer and Chapter 6 before commencing. Remember all computers use static sensitive components to function so handle the interface card by the edges and avoid unnecessary touching.

Warning

Before installing your SCSI interface ensure that your machine is both switched off and unplugged from the mains to avoid risk of electric shock.

If you are in any doubt about fitting this product please consult your supplier.

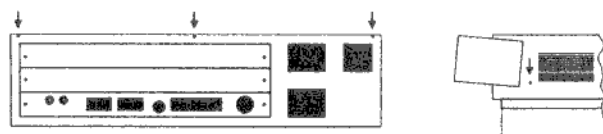
Installation A300/400/540 series

Note :

Owners of Archimedes A305, A310 and A440 computers should note that this interface will not function at full speed without a MEMC1a installed.

Later versions of these machines (model numbers ending in /1 have MEMC1a fitted).

Remove the five screws that hold the lid in place as shown :

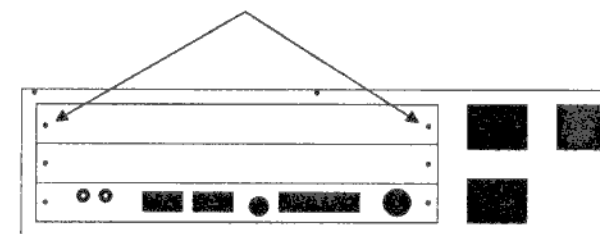


Then slide the lid towards the rear of the machine. If the lid is stiff pull the lid alternatively at either side until the lid becomes free.

Backplanes

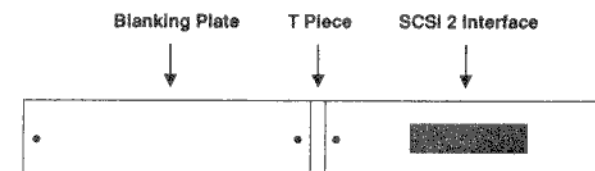
A305 and A310 owners should ensure that their computer is fitted with both a backplane and a fan. If the backplane you have installed is not multi-layer this could result in unreliable data transfer. If you are in doubt please consult your supplier.

If you are fitting an internal SCSI drive it is easiest if your SCSI interface is located in the uppermost interface slot beside the power supply. If no interface cards are fitted remove the uppermost blanking plate by removing the two fixing screws :

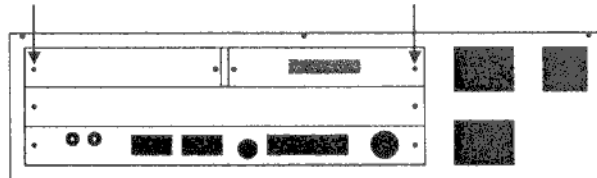


Once the blanking plate is removed it is no longer required and should be stored in a safe place.

If you are not installing another interface card next to the SCSI interface then take the half slot blanking plate supplied in the kit and using the T-piece supplied, screw the SCSI interface and the half slot spacer together as shown :



Taking the full assembly, install making sure that the 64 way interface connector meets with the back plane correctly and secure with the two screws :



Notes :

Intermittent faults may occur if the interface is not pushed fully home onto the backplane.

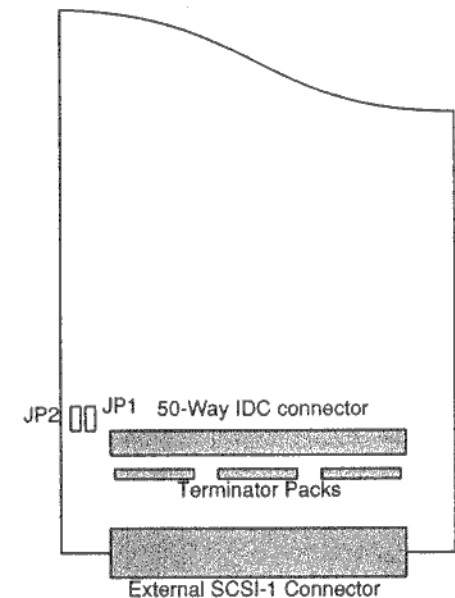
The 16-bit SCSI interface has two links fitted.

JP1 provides power for the SCSI bus terminator. Only remove this link if the last device on the bus is powering its own terminator.

JP2 provides power for the SCSI card terminators.

If links are removed, a convenient way to store the links is to place them on one pin only.

Power-tec 16-bit SCSI interface, viewed from above



Now read Chapter 6 - Fitting Internal SCSI Devices, and Chapter 7 - Setup.

Notes

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Installation A5000 series

Installation

Installing your SCSI interface is a straightforward task. Read the section applicable to your computer and Chapter 6 before commencing. Remember all computers use static sensitive components to function so handle the interface card by the edges and avoid unnecessary touching.

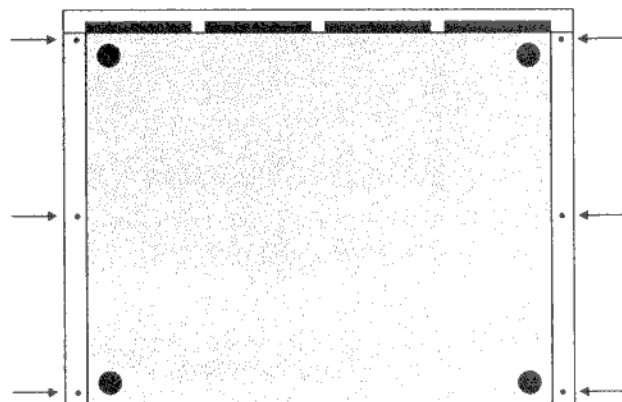
Warning

Before installing your SCSI interface ensure that your machine is both switched off and unplugged from the mains to avoid risk of electric shock.

If you are in any doubt about fitting this product please consult your supplier

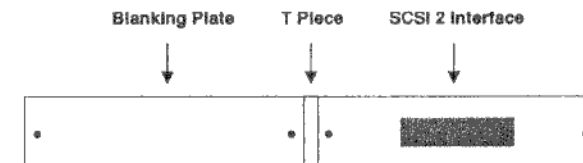
Installation A5000

Remove the six screws on the underside of the computer which secure the lid :

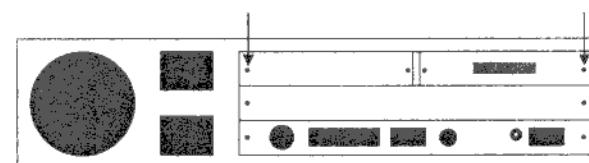


Remove the lid by sliding towards the rear and place carefully to one side. Remove one of the blanking plates from the rear of the computer. Once the blanking plate is removed it is no longer required and should be stored in a safe place.

If you are not installing another interface card next to the SCSI interface then take the half slot blanking plate supplied in the kit and using the T-piece supplied, screw the SCSI interface and the half slot spacer together as shown :



Taking the full assembly, install making sure that the 64/96 way interface connector meets with the back plane correctly and secure with the two screws :



Note :

Intermittent faults may occur if the interface card is not pushed fully home on the backplane. Such faults will be detected by the Power-On Self Test.

Now read Chapter 6 - Fitting Internal SCSI Devices, and Chapter 7 - Setup.

Notes

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Installation Risc PC series

Installation

Installing your SCSI interface is a straightforward task. Read the section applicable to your computer and Chapter 6 before commencing. Remember all computers use static sensitive components to function so handle the interface card by the edges and avoid unnecessary touching.

Warning

Before installing your SCSI interface ensure that your machine is both switched off and unplugged from the mains to avoid risk of electric shock.

If you are in any doubt about fitting this product please consult your supplier.

Installation Risc PC

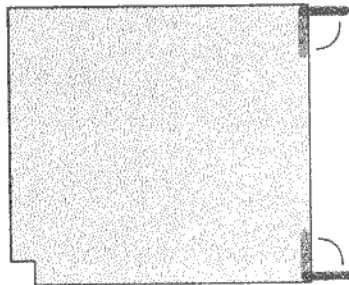
Note :

The SCSI-2 interface makes use of Direct Memory Access (DMA). This feature is supported by the lowest 2 interface slots on the backplane.

The card should be fitted to Slot 0 or Slot 1 for maximum performance. It is not recommended to be fitted in any other position.

Arrange the computer so as the rear of the machine is facing towards you.

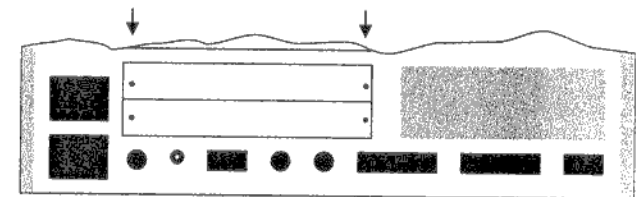
Turn the two locking levers at the rear of the computer to the unlocked position :



Withdraw the locking pins from the casing of the machine, then lift the lid at the rear and place carefully to one side.

If you have other interface cards fitted in the computer, remove these now noting any cable connections.

Remove the stainless steel blanking plate securing screws :



and place to one side. Once the blanking plate is removed it is no longer required and should be stored in a safe place.

Install the interface making sure that the 64/96 way connector meets with the backplane correctly, secure the assembly by replacing the two screws that held the blanking plate.

Notes :

Intermittent faults may occur if the interface card is not pushed fully home on the backplane. Such faults will be detected by the Power-On Self Test.

Ensure that the metal blanking plate does not short out against the underside of the Power-tec card.

Now read Chapter 6 - Fitting Internal SCSI Devices, and Chapter 7 - Setup.

If you are not installing any internal devices at this point then refit the lid and locking pins to the machine in reverse order to the removal procedure.

Performance

RISC PC Performance

See the note on p24 about use of Direct Memory Access (DMA).

Note that the performance of the Power-tec SCSI-2 card will be halved if no VRAM is fitted.

Fileserver Performance

Because fileserving is highly reliant on hard disc sub-system performance, marked improvements in fileserver performance may be obtained in certain instances by installing a Power-tec HBA using DMA with a fast SCSI-2 hard disc drive on the Risc PC.

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Fitting internal SCSI devices

Installation

Read the section applicable to your computer before commencing. Remember all computers use static sensitive components to function so handle the interface card by the edges and avoid unnecessary touching.

Warning

Before installing any device ensure that your machine is both switched off and unplugged from the mains to avoid risk of electric shock.

If you are in any doubt about fitting any product please consult your supplier.

Installation - SCSI devices in general

When handling hard disc drives use extreme caution as they fragile items and easily damaged, eg, if dropped.

Remove the disc drive from the packaging, but before installing it into the cradle consider the following :

- Decide on the correct termination of the SCSI bus, depending on where the device is to be fitted.
- Ensure that parity is enabled on the device.
- Set the required SCSI ID on the device

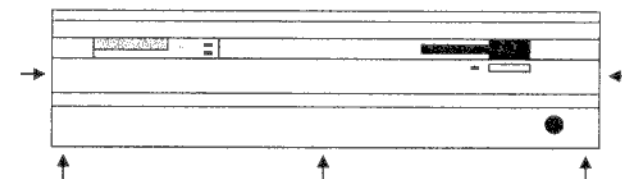
Notes :

See pp36-37 the end of this Chapter for more information about SCSI bus termination. New devices, eg, hard discs, usually come ready terminated. Switches, links or plug-in resistor packs may be used - see the documentation provided with the device.

*Each device on the SCSI bus needs a unique ID number in the range 0 - 7. Each device will have a specific way in which its ID number is set - see the documentation provided with the device. If you already have a SCSI system fitted enter *Devices and make a note of the ID numbers in use.*

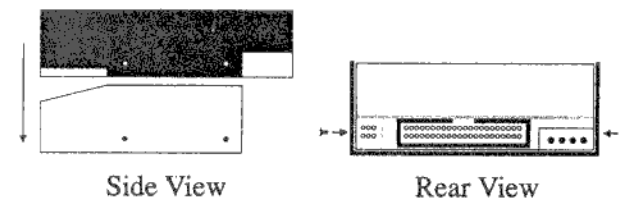
Installation - internal devices A300/400/540 series

You may need to remove the front fascia of the computer to gain access to where the drive cradle will sit. Remove the five screws indicated :

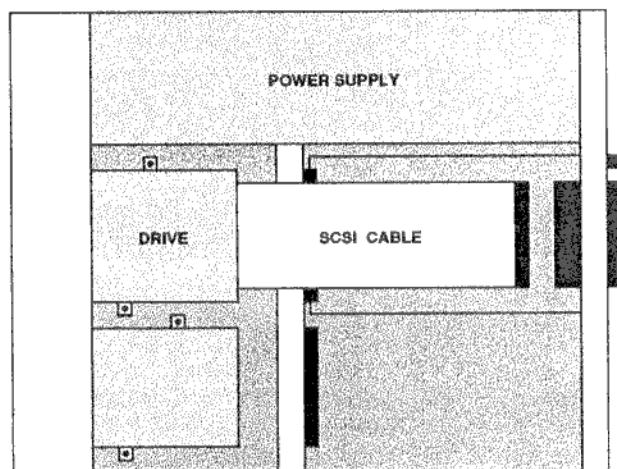


Placing the fascia to one side you will see the vacant drive cradle area next to the floppy disc drive.

After setting the required links fit the drive unit into the cradle using four screws :



Taking a 50 way SCSI cable, plug one IDC connector into the internal SCSI header on the SCSI interface and plug the other IDC connector into the rear of the disc drive :



Now plug a cable from the power supply unit into the power socket on the disc drive. This is a keyed four way connector. Re-fit the front fascia to the machine by replacing the five screws. Replace the lid and re-fit screws.

Installation - internal devices A5000

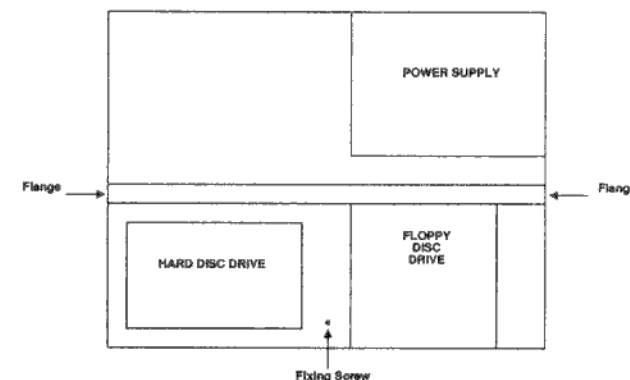
An internal SCSI hard disc may either be fitted as a replacement (use the position provided on the 'shelf') or as a second internal drive under the floppy. In the latter case only 1" high 3.5" form factor drives will fit.

Turn the computer so the floppy drive is facing

towards you with the front nearest your body.

The existing hard disc can be seen secured to a metal shelf at the front of the computer. This shelf together with the backplane requires removal for the fitting of a second hard disc. Carefully identify and disconnect the power and data cables supplying both the hard disc and the floppy disc.

At the centre of the shelf supporting the existing hard disc you will see a single securing screw. Undo this and place it to one side for re-assembly later.



After double checking that you have disconnected the power and data cables to both the existing floppy and hard discs, gently but firmly ease the shelf/backplane assembly up off the mounting lugs located at the edges. Exercise a degree of caution as you lift the shelf/backplane assembly up to prevent any accidental damage to the motherboard or backplane connector pins. Once the shelf/backplane is clear of

the connector on the motherboard and the side mounting lugs, lift the assembly away towards the rear of the computer and place to one side for re-assembly later.

Consult your data sheet supplied with the new drive for information on link settings (SCSI ID and termination) and make these changes before proceeding.

Locate the position into which your new hard disc is going to be fitted, immediately underneath the position of the floppy drive, on the right hand side of the case floor - or on the shelf replacing the original drive.

Fit the new hard disc ribbon cable to the new drive together with one of the power connectors from your power splitter cable. If fitting under the floppy drive, place the new hard disc in position with the data and power connectors towards the rear of the computer. Some dexterity is now required as the mounting screws require fitting from below the case floor. Holding the new hard disc in place, stand the computer up on the left hand side so the disc is now near the top.

Secure the drive in position by means of the mounting screws taking care to ensure all four are evenly tightened. Return the computer to the horizontal position.

Locate the shelf/backplane assembly and offer this up to the motherboard. Before attempting to secure, thread the new SCSI hard disc ribbon cable and power cable through the shelf assembly.

Replace the original floppy drive and IDE drive ribbon cables between the old drives and the motherboard and plug in the power connectors. Check the position of the backplane/shelf assembly and re-fit. Secure the shelf assembly with the single screw.

Re-fit any expansion modules as necessary.

Connect the end of the 50-Way SCSI cable onto your SCSI interface card.

Replace the lid and case screws.

Installation - internal devices Risc PC

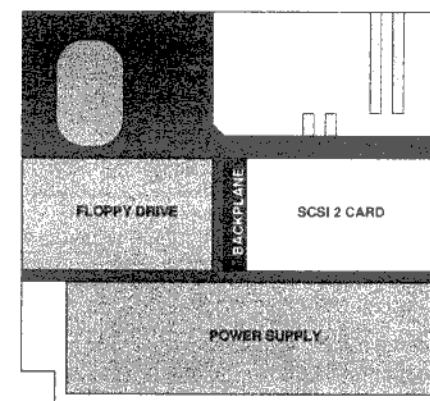
The Risc PC has drive bays suitable for both 3.5" and 5.25" devices. Select a convenient empty bay and dismantle the computer further by removing the two front securing rods.

Remove any expansion interfaces which are plugged into the backplane and carefully withdraw the backplane, ARM processor card and any additional processor card. Withdraw the whole slice section removing floppy disc drive cables if necessary and invert to gain access to the device securing holes. Line up your SCSI device in the vacant bay and secure using screws. (These are provided if the device is purchased from AlsysteMS)

Note :

If you are fitting a CD-ROM Drive or Tape Streamer that requires access from the front of the computer, you will need to remove a section of the front panel with a sharp knife.

When you have secured the device in the bay, re-fit the slice section replacing any processor boards, backplane or expansion cards and cables you removed. A suitable 50-way ribbon cable with IDC connectors should then be folded to exit the podule stack towards the left so it is positioned to run from the SCSI interface card to your device without obstructing other cards:



If more than one SCSI device is to be internally connected to the interface card, obtain a longer cable from your supplier with the appropriate number of connectors to daisy chain each device together and link up with the card.

SCSI Bus Termination

SCSI-1

The SCSI bus (ie, cable(s)) has to be correctly **terminated** to ensure that data pulses pass between devices without reflections at the ends of the cable, which are likely to produce errors. This is especially important when long external cables are used and with the faster SCSI-2 and SCSI-3 cards.

The older SCSI-1 cards are provided with passive termination by 3 resistor packs fitted in socket strips at the rear of the card (see also pp16-17). Each resistor pack is marked with a dot:



If you have to remove the packs, make sure that the socket is marked so you can re-fit them the correct way round, and keep them safely: you may need them in the future (see below).

Older SCSI-2

The early SCSI-2 cards (Serial Nos. 1xxxx) are equipped to provide active termination. This facility is enabled or inhibited using the configuration software, without opening the case (See Chapter 7 - Setup).

Generic SCSI-2 & SCSI-3

The generic SCSI cards (Serial Nos. 202xx or 203xx) have a new component layout: these cards have now replaced all earlier Power-tec SCSI cards. Several different combinations of components can be

fitted to give various levels of performance, at different prices, and they can be economically upgraded by our workshop.

This generic SCSI card will usually be supplied SCSI-2 or SCSI-3 equipped, and will be fitted with ICs U7 and U8 which provide active termination like the older SCSI-2 card. It can however be supplied

TERMINATION RULE:

The SCSI device or card that is physically located at **each** end of the SCSI bus cable(s) must be terminated, and no others.

A simpler view: "Think of terminators as the buffers at the beginning and end of a railway track. You want a buffer at each end of the track to stop the trains falling off, but you certainly do NOT want a buffer in the middle of the line." Anon.

SCSI-1 equipped with resistor packs in sockets for passive termination, like the SCSI-1 cards described above. Inspection of the card should show which termination method is used, but check with Tech Support if you are not sure.

See important Note overleaf

Note:

If the arrangement of devices is changed, or devices are added or removed, the overall termination requirements must be reconsidered. The resistor packs may need to be removed or re-fitted, or the active termination may need to be disabled or enabled, and the termination of both the existing and new individual devices may need to be changed (for which, see the manufacturers' documentation).

SCSI Activity Indication

Connection pins are provided on the SCSI-2 and the generic SCSI cards for an optional SCSI activity Light-Emitting Diode (LED). If it is required, the LED must be provided and fitted in an appropriate position on the case by the user. No additional limiting resistor is required but polarity of the connection should be checked (reversed connection will not cause damage).

The LED illuminates whenever the CPU is accessing the SCSI card. In this it is similar to the IDE activity LED. However, **it is not illuminated during DMA transfers**. Thus the behaviour of the LED driven by a card/computer capable of DMA data transfer will differ from the behaviour associated with non-DMA transfer: flashes of the LED will be so brief and relatively infrequent that it is hardly useful.

Setup

Notes :

The illustrations in this Manual use Sassoon Primary font, 4-greys, plain background and 2-D icons for clarity in printing and economical publication on the Web. Users with other configurations will see slightly different windows.

Each SCSI device connected to the interface requires a unique ID number in the range 0 - 7. By default your interface card will use ID 7 when fitted - you can change this if necessary using the Advanced Installation routine. Consult the manufacturers' instructions to find how to set the ID numbers of drives and other devices.

This Chapter explains the use of the application !PowerMgr, supplied on your Power-tec Support disc. This application should be copied to and routinely run from any hard disc or a floppy. Keeping a spare copy on an IDE hard disc or a floppy is a wise precaution against an error when setting up the SCSI system which might make !PowerMgr inaccessible!

Overall Features and Constraints

In deciding how best to set up the SCSI system some appreciation of its features and limits is required.

The Power-tec SCSI interfaces can :

- Access up to 8 valid SCSI partitions of currently up to 511 MB each (up to and including RISC OS 3.5) or greater from RISC OS 3.6 on.
- Partition any individual SCSI hard disc into a maximum of 8 partitions
- Automatically map writable media (fixed and removable hard discs, and tape streamers) and their partitions to RISC OS drive icon number (at the top of the menu window) according to the following ascending priorities :

1. Writable media SCSI ID number
2. Writable media partition number

e.g.

Suppose a computer has two hard discs connected, each with four partitions. The SCSI ID numbers of the two drives are 2 and 5 respectively. The automatic mapping would then appear as follows :

SCSI ID 2, partition 0, is mapped to SCSI::4
 SCSI ID 2, partition 1, is mapped to SCSI::5
 SCSI ID 2, partition 2, is mapped to SCSI::6
 SCSI ID 2, partition 3, is mapped to SCSI::7
 SCSI ID 5, partition 0, is mapped to SCSI::0
 SCSI ID 5, partition 1, is mapped to SCSI::1
 SCSI ID 5, partition 2, is mapped to SCSI::2
 SCSI ID 5, partition 3, is mapped to SCSI::3

- Manually map writable media partitions to RISC OS drive icons
- Set any partition to 'Read-Only' if required
- Access the data of RISC OS & DOS partitions that may already be set up on hard discs
- Convert partitions created by most other manufacturers' SCSI interfaces to Power-tec format for optimum performance.

Note :

Whilst this software has been extensively tested by reading and writing to partitions created by other manufacturers' SCSI interfaces, no guarantee can be given.

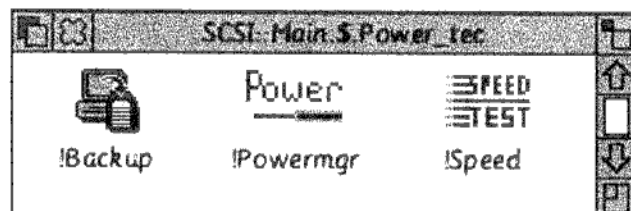
- Co-exist with up to 3 other Power-tec SCSI interfaces (except early 8-bit SCSI-1 cards) in the same computer

Note :

When multiple cards are fitted, the Host ID numbers are automatically changed by adding 8, giving typical IDs of 7, 15, 23 & 31. (See also the note about DMA on the Risc PC - p.24)

- Be shared across an Acorn Access network
- Interface with CD ROM drives, tape streamers and scanners
- Provide a wide range of desktop and command-line actions and *Configure options.
- Carry out Power-On Self Test (POST) at start up

The following Power-tec applications are supplied on the Support disc :



!PowerMgr

This is a powerful yet easy to use application which is used to configure Power-tec and other suppliers' SCSI card(s). It allows automatic express configuration, but also has an advanced option for detailed tailoring of the system. The settings made are retained in CMOS RAM.

!Speed

This application reports on the Read and Write speeds for a variety of block sizes. It can be **copied onto any filing system, drive or medium**, ADFS, SCSI, NET etc., and then run to establish typical rates of data transfer of that filing system or medium.

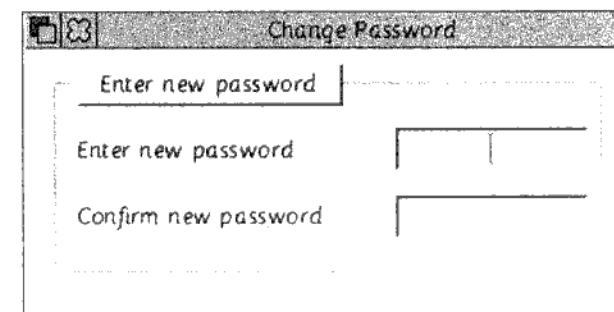
!Backup

This application allows for the convenient and timely backup of data from hard discs onto other devices, including various types of tape streamer. This utility offers both timed and selective backup and restore.

!PowerMgr

Double-click *Select* on !PowerMgr to run it: the first time you do so you will be asked to enter your name and organisation. The !PowerMgr icon will appear on the icon bar. (A file system selection window - not illustrated - will appear if there is more than one available; click *Select* on 'Power-tec SCSI FS').

You can choose to restrict future use of !PowerMgr by clicking *Menu* over the icon on the icon bar and then clicking on 'Change Password'. You should do this only if you do not wish other users to alter the SCSI configuration. This opens a new window :



Write down your choice of password then carefully enter it, repeating the process to confirm your choice.

Notes :

The password is encrypted, so you must ensure you are able to recall any password you have set.

!PowerMgr will require you to enter the password each time it is run, once one has been set, and WILL NOT WORK if you cannot type it in correctly. If this happens, please consult your supplier. You will require to reload a new copy of !PowerMgr.

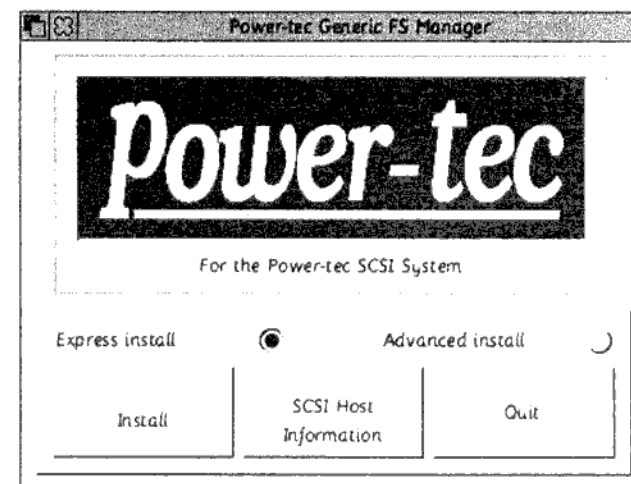
Please note that any user who has a non-passworded copy of !PowerMgr will be able to bypass the password security, so the custody of the original Support disc is an important security consideration.

To remove password protection, simply follow this procedure again but just press Return in the window above without entering anything.

Install

If you have set a password you will be asked to enter it. When this has been done correctly you are ready to proceed with setting up your system.

The main Power-tec Manager window looks like this when it first opens:



Clicking *Select* on 'Install' when the 'Express Install' button is selected (default) will perform an automatic configuration of your SCSI interface.

This option interrogates the SCSI bus to establish :

- which SCSI cards and devices are connected
- the individual SCSI device ID numbers
- whether any SCSI hard discs have previously been partitioned

The software will automatically map the devices and valid partitions to individual icons on the icon bar (see p40).

Once completed, the computer will then be reset automatically to take account of the new configuration.

Note :

This option configures the SCSI ID number of your first SCSI card to be 7, the next (if any) to be 15, etc.

SCSI Host Information

Clicking *Select* on this option displays details of the SCSI card, including the firmware date (**the date of the SCSIdriver module**) and information on the range of features it provides:

Power-tec SCSI Information	
SCSI Host Adapter Version	
Manufacturer	Alsystems
Firmware date	08 Oct 1997
SCSI Host Adapter Features	
Supports target mode	No
Supports configuration	Yes
Supports reading control line	No
Supports device reservation	Yes
Supports multiple SCSI cards	Yes
Supports *SCSIBlock	Yes
Supports *Devices	Yes
Supports scatter lists	Yes
Supports messaging	Yes
Supports automatic Request Sense	Yes
Supports command queuing	Yes
Supports background data transfer	Yes
Supports disconnect/reselect	Yes

You can close this window by clicking *Select* over the 'Close' icon.

Quit

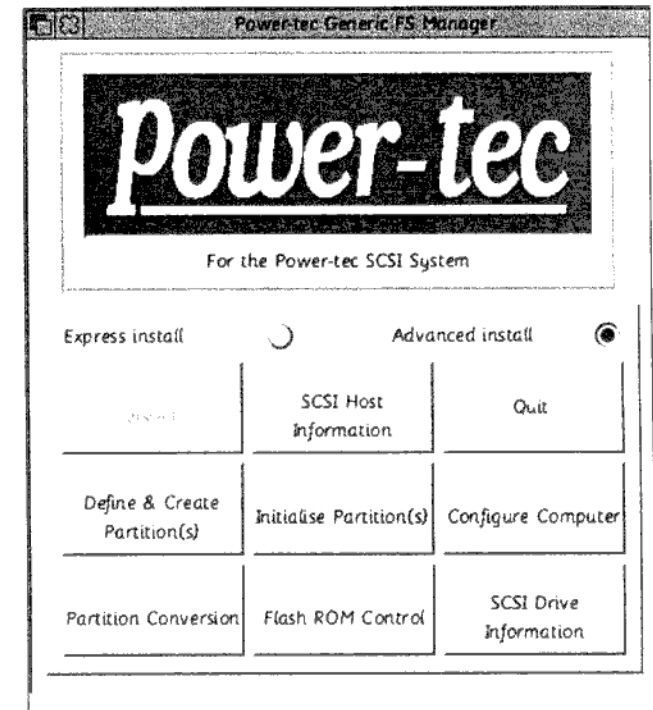
If there is more than one Power-tec File System present, Clicking *Select* on the 'Quit' button will open a small window asking whether you wish to configure another. This window is omitted if only one File System is present. A reply of 'Yes' takes you back to the initial window referred to on p.43; otherwise !PowerMgr will quit and remove its icon.

Advanced Install

Clicking *Select* over Advanced Install will expand the window and allow some additional operations:

- Definition and creation of hard disc partitions
- Initialisation and formatting of existing or new partitions
- Fine tuning of the SCSI configuration
- Conversion of 'alien' partitions to Power-tec format for optimum performance
- Programming the FLASH ROM (EEPROM) (this will be greyed out if it is inapplicable)
- Extraction of SCSI drive/device information

Since many of these activities are inter-related the software will guide you through, recommending any further initialisation or re-configuration that may be required.

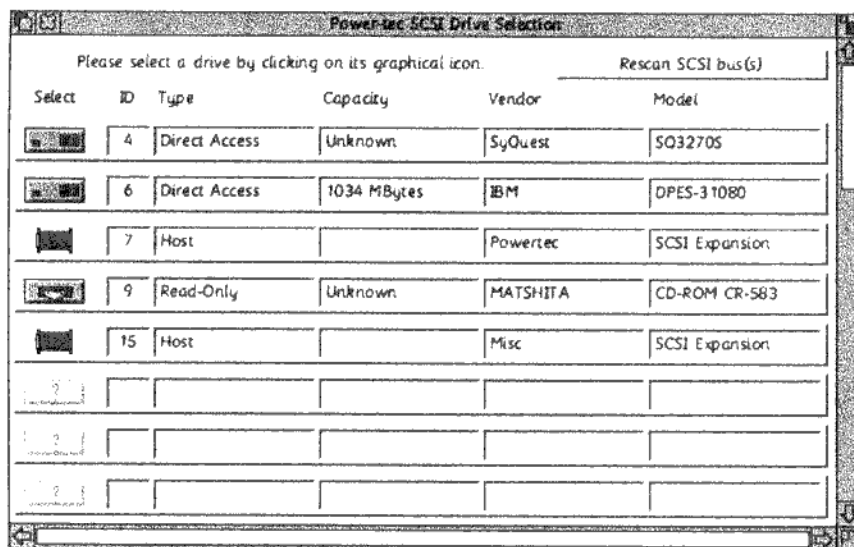


Create Partitions

Clicking *Select* on this option will open the SCSI Drive Selection window (see top of next page).

WARNING

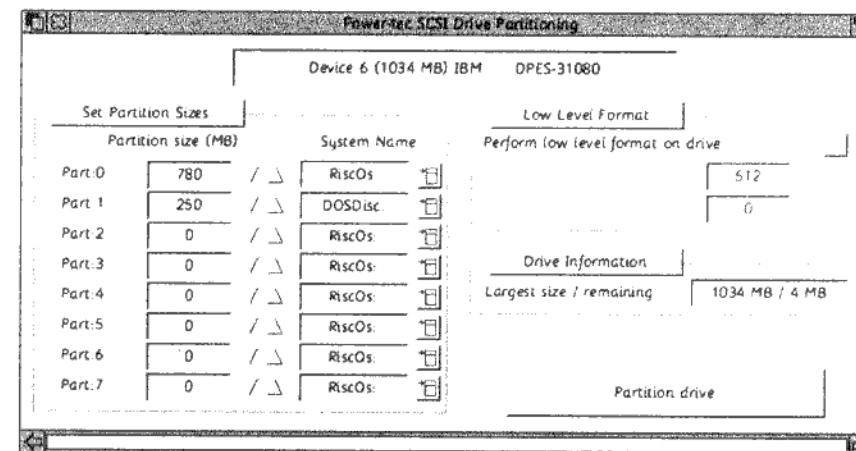
Creating partitions will erase all data on the disc. THIS PROCESS IS IRRECOVERABLE. Ensure any data is backed up before creating new partitions.



Position the mouse pointer over the icon in the window that represents the 'Direct Access' device you wish to partition and click *Select*.

If you have a tape streamer it will be shown as a 'Sequential' device. Please turn to Chapter 11 which describes the somewhat different procedure.

The Drive Partitioning window on the page opposite is displayed immediately a device is selected.



The SCSI ID number for the device together with overall capacity, vendor and model information are displayed at the top.

The Primary Partition (Part:0) is by default stated as being the capacity of the drive (or 511Mb, whichever is the smaller, in RISC OS 3.5 & earlier).

The largest permissible partition is shown. SCSIFS can control a partition up to 256Gb. However, in RISC OS 3.5 and below, Filecore limits the size to 512Mb.

You may click *Select* directly over a number; erase and enter a reduced value from the keyboard; or use the 'Increase/Decrease' icons located to the right of the value (Hold down *Shift* or *Ctrl* respectively for 10Mb or 100Mb jumps):

The 'System Name' of each partition is RiscOS by default. The other alternatives, which may be seen by clicking on the list icon, are:

- OldMap (the original RISC OS 'D' format)
- DOSdisc (for DOS, Windows, PCCard)
- Backup (for use with !Backup - see p. 69)
- Empty (no boot block, eg for RISC BSD)

Low level formatting is rarely required, but if it is, click *Select* on the button. The Sector size and interleave will show what is on the disc already (it **must** be 512 for DOS).

Although this option multi-tasks, it may still take some time to complete depending upon the size of the hard disc being formatted. **The drive icon is minimised and is inaccessible to the user until low level formatting is complete.**

When ready, click *Select* on 'Partition drive'.

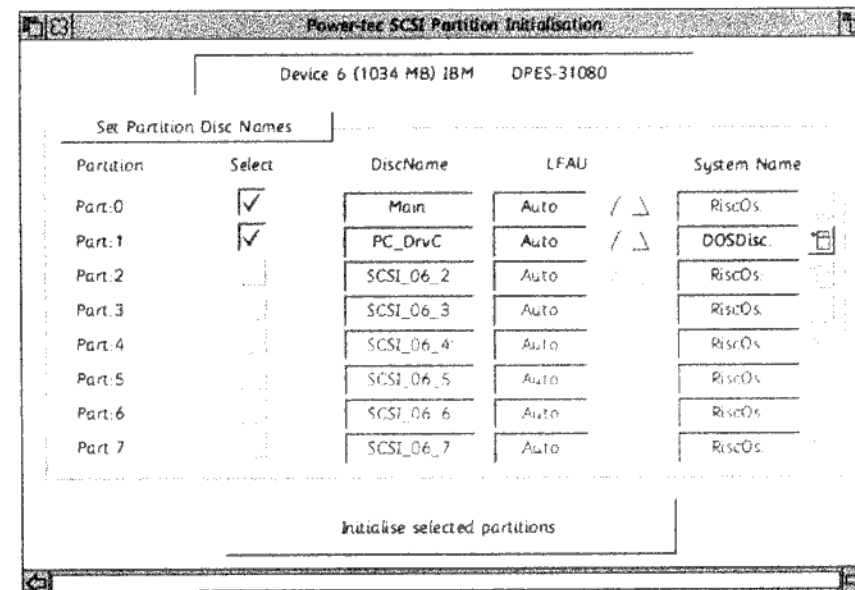
When the partitioning/formatting is complete, the next main window, shown opposite, will open.

WARNING

Initialising partitions will erase any data within them. THIS PROCESS IS IRRECOVERABLE. Ensure any data is backed up before initialising a partition. Data in unselected partitions is not affected

Initialise Partition(s)

This option allows any or all of the partitions, including Partition 0, to be selected and initialised:



Positioning the mouse pointer over the 'Disc Name' icon and clicking *Select* will allow a new name to be entered: 'Main' and 'PC_DrvC' are shown here.

The 'Large File Allocation Unit (LFAU) Setting' may be left at Auto or manually selected by clicking on the adjacent icon. The minimum LFAU will depend on the partition size. A small LFAU will reduce wasted space when many small files are expected to be stored, but will somewhat reduce disc performance, and conversely.

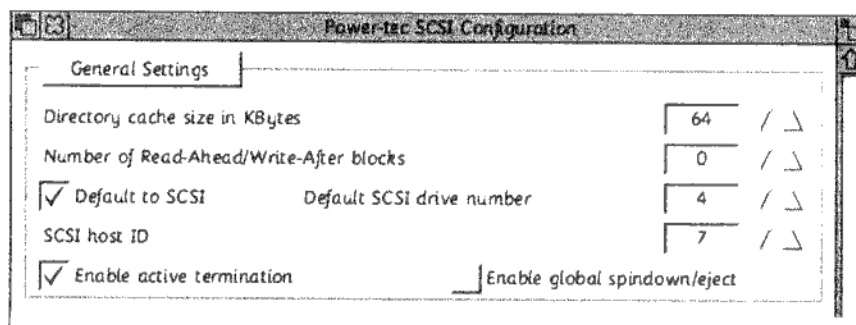
There is a further opportunity to change the System Name if required (see previous section, p52).

Clicking *Select* over 'Initialise selected partitions' will complete this section and cause initialisation of the partitions selected.

You may close this window **without** initialisation by clicking *Select* on the *Close* icon.

Configure Computer

This section lies at the heart of the Power-tec SCSI utility software and is invoked by most other activities.



General Settings

These settings apply to the SCSI system as a whole.

The amount of memory allocated to the directory cache, and the number of blocks allocated to Read-Ahead/Write-After buffer operation can be specified.

These values influence the performance of the card and you may choose to 'fine tune' this by changing the default values.

Notes:

The CPU can get on with some other activity during DMA data transfer provided the 'SCSI Read-Ahead/Write-After blocks' (buffer) is set to a non-zero value.

Maximum read speed will be gained with blocks set at 255. Maximum write speed will be gained with blocks set at 0. The default setting is 32.

If the computer has already been configured to have SCSI FS as its default filing system, the 'Default to SCSI' button will already be ticked. If not so configured, but this is desired, click on this button. (This is equivalent to *CONFIG. FILESYSTEM SCSI entered at the command line).

The 'Default SCSI drive number' refers to the particular **partition** from which the computer will be booted: any partition may be used. Position the mouse pointer on the relevant drive icon and click *Menu*; the logical drive number required is that

shown in the menu heading. The name of the partition which is mapped to this number will be seen underneath the drive icon.

Note :

*Should you wish to boot from a SCSI hard disc you will also need to set the Run-Boot attribute on the Primary Partition by selecting its icon to make its root the Current Directory and then entering *OPT 4,2 from the command line. You may also need to edit some files in your !Boot directory to ensure any absolute pathnames are correct.*

The 'SCSI host ID' refers to the identification of the SCSI interface card (a.k.a. Host Bus Adapter (HBA)) as a member of the SCSI bus. This must be a number in the range 0 - 7. The default value is 7 as shown in the illustration.

Active termination is provided on SCSI-2 and SCSI-3 cards. If 'Enable active termination' is ticked, termination is applied **to the card itself**. See Chapter 6, pp36-37, for information about when to apply this termination to the card.

The 'Enable spindown/eject' button is provided to allow removable media devices to spin down and eject their media when a Dismount or Shutdown is carried out. (See also Chapters 9 & 10 for means of controlling/setting auto-spindown)

Access Rights

The Read/Write access can be set separately for any partition. Only those drives that have been set up will be shown.

These access rights may be changed by running 'Configure System' at any time. This feature provides great flexibility to users who wish to have full Read / Write access whilst setting up applications on a partition, before making that partition available as Read Only on a network or in another shared environment.

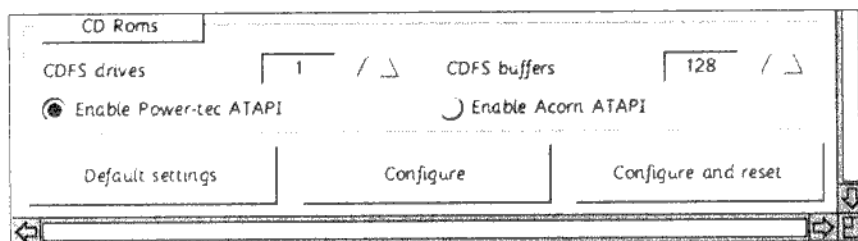
Access Rights							
Drive	Read	Write	ID	Drive	Read	Write	ID
SCSI:4	☒	☒	6	SCSI:0	☒	☒	-
SCSI:5	☒	☒	6	SCSI:1	☒	☒	-
SCSI:6	☒	☒	4	SCSI:2	☒	☒	-
SCSI:7	☒	☒	-	SCSI:3	☒	☒	-
☒ Permit manual ID selection instead of automatic detection							

Manual mapping of SCSI devices to RISC OS desktop numbers may be carried out after clicking on the 'Permit Manual ID Selection' button.

In this illustration, the 2 partitions on drive ID 6 are manually mapped to SCSI:4 and SCSI:5. Drive ID 4 has a single partition mapped as SCSI:6. All these partitions are set to Read/Write.

CD Drives

This section of the Configuration window allows you to set the number of CD drives and the ATAPI driver that will be used:



The total number of CD drives fitted should be entered, whether they are SCSI or IDE. The CDFS buffer size can also be set here (or from the CD iconbar menu).

The ATAPI system to be used may be the Acorn module (CDFSSoftATAPI) either soft loaded or in RISCOS ROM, or the Power-tec module (CDFSSoftPower). Either one or neither (but not both) may be selected by clicking on the buttons. If both are deselected, the Acorn module is Unplugged, and ADFS buffers are set to 0 which has the side effect of disabling the Power-tec module.

Note:

When the Power-tec ATAPI is enabled, the 'SCSI drive information' window will show a second host as a simulated 'SCSI expansion' and the startup screen will show a second ADFS File System.

You can set all values to their defaults at any time by clicking *Select* over the 'Default settings' button at the foot of the main Configuration window:

Changes to the configuration are made by clicking *Select* over the 'Configure' or 'Configure and Reset' button. Up to that point you may go back and change anything you wish, or leave without changing anything by clicking on the 'Close' icon.

Notes :

The configurations selected are stored in CMOS RAM in the computer (see also Chapter 10).

The Risc PC uses different areas of CMOS RAM for each podule slot. As a result, if you alter the slot in which your SCSI card is fitted you may need to re-enter the configuration settings.

Partition Conversion

Clicking on the Partition Conversion box will interrogate the selected device to note whether any partitions it contains are already Power-tec compatible. If they are, no changes are made.

If a partition is found that was created by another manufacturer's SCSI interface, it is converted to Power-tec format **without affecting the original data**. The partition will appear unchanged to the original non-Power-tec SCSI interface.

Flash ROM Control (SCSI-2 & SCSI-3 cards)

The firmware on recent Power-tec SCSI interfaces can be updated without the need to dismantle the computer. It is contained in a 128Kb Electrically Erasable/Programmable Read-Only Memory, (EEPROM or Flash ROM) which can be re-programmed *in situ* by copying a new 'image' (file type &FE5) into it from a floppy disc.

Notes:

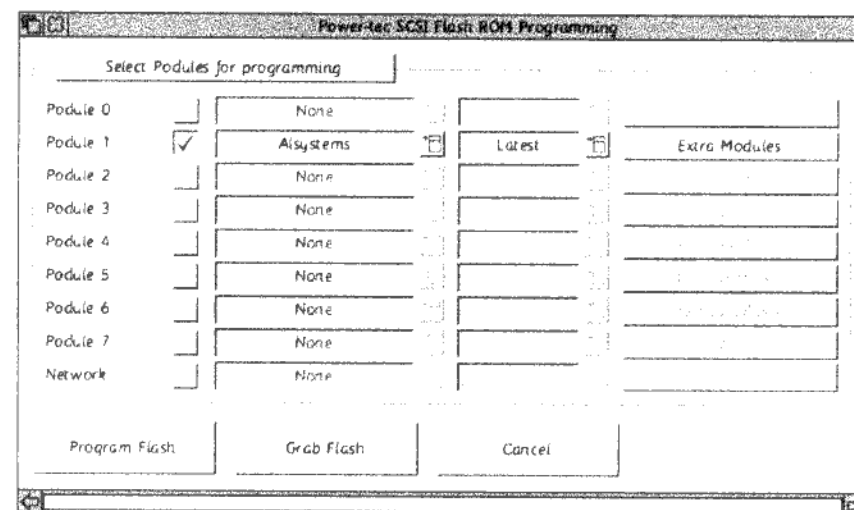
When you receive an upgrade floppy disc, you should use it to replace any earlier versions of !PowerMgr, !Backup and !Speed on your hard disc or make a new working backup floppy disc.

Make sure you run this NEW version of !PowerMgr for it is the one containing the latest firmware image.

Please follow these upgrade instructions carefully, and also those on the screen. You will be able to revert to your previous firmware, but will still have to use this procedure to do so.

If you are not entirely clear about what to do please telephone Tech Support before you start re-programming.

Clicking on 'Flash ROM Control' opens a new control window:



For each of the installed cards (podules), shown ticked, the first column shows the name of the firmware supplier (which may not be the same as the card manufacturer).

The second column shows the 'image' to be programmed into the ROM. It will show 'Latest' by default, but if you wish, for example, to revert to an earlier version of the firmware you may choose from whatever image files are held in directory 'Old' (if any have previously been grabbed).

The options for either of these columns, if there is more than one item available, is chosen by clicking on the adjacent list icon and then ticking the item required.

The third column allows re-programming of individual modules or the addition of up to about 30kB of the user's own modules. Such modules should be placed in the directory 'Modules' **inside !Powermgr**, which may be opened by clicking on the 'Extra modules' icon.

Re-programming a Flash ROM overwrites its contents, so these may be saved first by clicking on the 'Grab Flash' button. A window will open showing the progress of the save, and you will find a file of type 'Data' inside directory 'Old' within the currently-running !PowerMgr. This file is named say, **019Sep1997**, which is the date (ROMdate) found within the header of the ROM itself: it is neither the original file date nor the save date.

Pause a moment and check that the date in the right-hand window does show the version you wish to use. When you are ready to re-program, click on 'Program FLASH'. You will be asked to confirm that you really do want to re-program: **this is your last chance to abandon the procedure.**

If you have not grabbed the old ROM contents (as already described; and this is recommended) you will be offered the opportunity to do so. Whether or not you accept, the procedure will start and you will be shown the progress of loading the file, and erasing, re-programming and verifying the ROM. The contents of the appropriate image file will then have been written into the ROM.

The computer will then reset itself. The new firmware will pick up the existing configuration settings from the CMOS RAM in the computer, so there is no need to 'Configure computer' unless you wish to change something. Reload !PowerMgr and click *select* on 'SCSI Host Information' and check that the new 'Firmware date' is shown: this confirms the EEPROM has been updated.

Drive Information

Clicking on this button initiates a search of the SCSI system; the same process and window are seen as are used to choose a device at the start of partition creation, initialisation and conversion, p50.

Clicking on any Direct Access device will run a simple speed test and then show full details of the device. In this example shown overleaf, the device ID is 6.

You can click on the !Edit icon to save the data as a text file.

Power-tec SCSI Drive Information			
Device 6 (1034 MB) IBM DPES-31080			
Vendor	IBM		
Product	DPES-31080		
Revision	S31Q		
ISO version	0	Block size	512
ECMA version	0	Block count	2118144
ANSI version	2	Cylinders	4903
Removable	No	Heads	4
Device type	0	Sectors/track	108
Read retry	1	Combined Performance	
Write retry	1	8192 KB blocks	4237 KB/s
Rotation rate	—	64 KB blocks	4160 KB/s
Rel Addr	No	Linked	Yes
Wide 32	No	RSVD	No
Wide 16	No	Cmd Queue	Yes
Sync	Yes	Soft Reset	No

8

Utility Software

!Speed

Power-tec SCSI interfaces are supplied with !Speed - a utility to measure Read / Write data transfer performance of any given writable medium.

This utility measures the performance of the medium it is run from, i.e. if you run it from floppy disc it will measure the speed of the floppy!

Note :

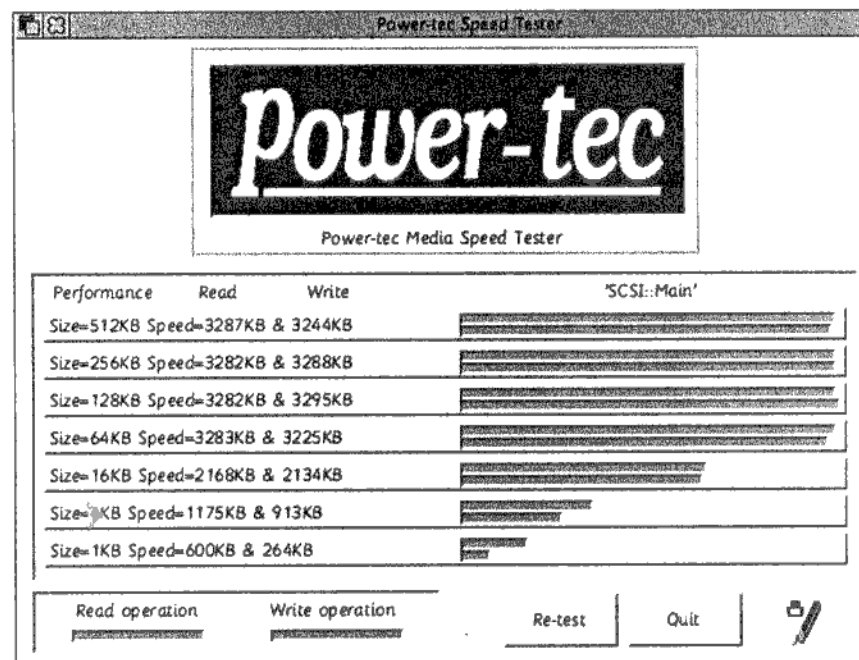
This utility measures the performance of a given hard disc partition when connected to a particular SCSI interface card. It is not a measure of the maximum possible speed of the card nor of the drive. Rather, it is an indication of the combined effect of card, drive and podule slot transfer rate.

Copy !Speed to any partition on the hard disc to be investigated.

Double clicking *Select* on the new copy of !Speed will generate a series of graphs showing average Read and Write times for 5 seconds-worth of reads and writes of data in various block sizes.

This process may be interrupted at any time by pressing the *Escape* key on the keyboard.

Clicking on the !Edit icon on the Speed graph screen will produce a text file enabling the results to be saved and printed.



!Backup

This utility allows the backup of data stored on one device onto a writable medium on another and selective restoration of the data.

The backup medium must first be partitioned/formatted using !PowerMgr (this applies to tape streamers as well as to fixed and removable hard discs). The 'System Name' of hard discs **MUST BE SET TO 'BACKUP'** (see pp52 & 54).

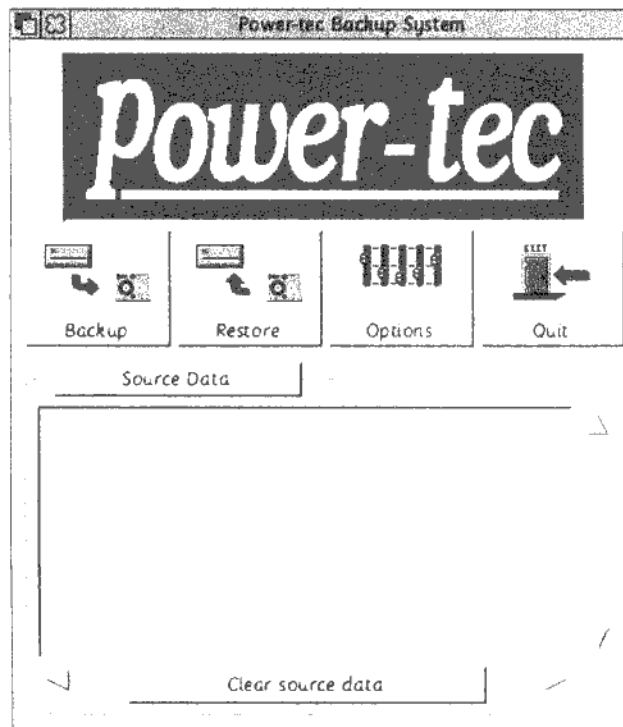
Notes:

Clicking on the iconbar icon of a mounted medium that has been set to Backup during partitioning will result in an error because it cannot be accessed by RISCOS; a warning that it needs to be accessed by !Backup will be given.

For the same reason, attempting to start or reset the machine with a Backup medium in a drive may cause the computer to 'hang'. If this happens, remove the medium and reset the computer.

Clicking *Select* on the iconbar icon opens the main !Backup control window shown on the next page.

To prepare to back up, click on 'Clear source data' to empty the main window, and set either new or appended backup (this may depend on the medium used). Then drag the directories/files to be backed up into the 'Source data' window. To backup a whole drive or partition, use 'Select all' in the file menu and drag the entire package of directories/files to the window. Backup sets may be split over multiple media, but individual files may not.



Options

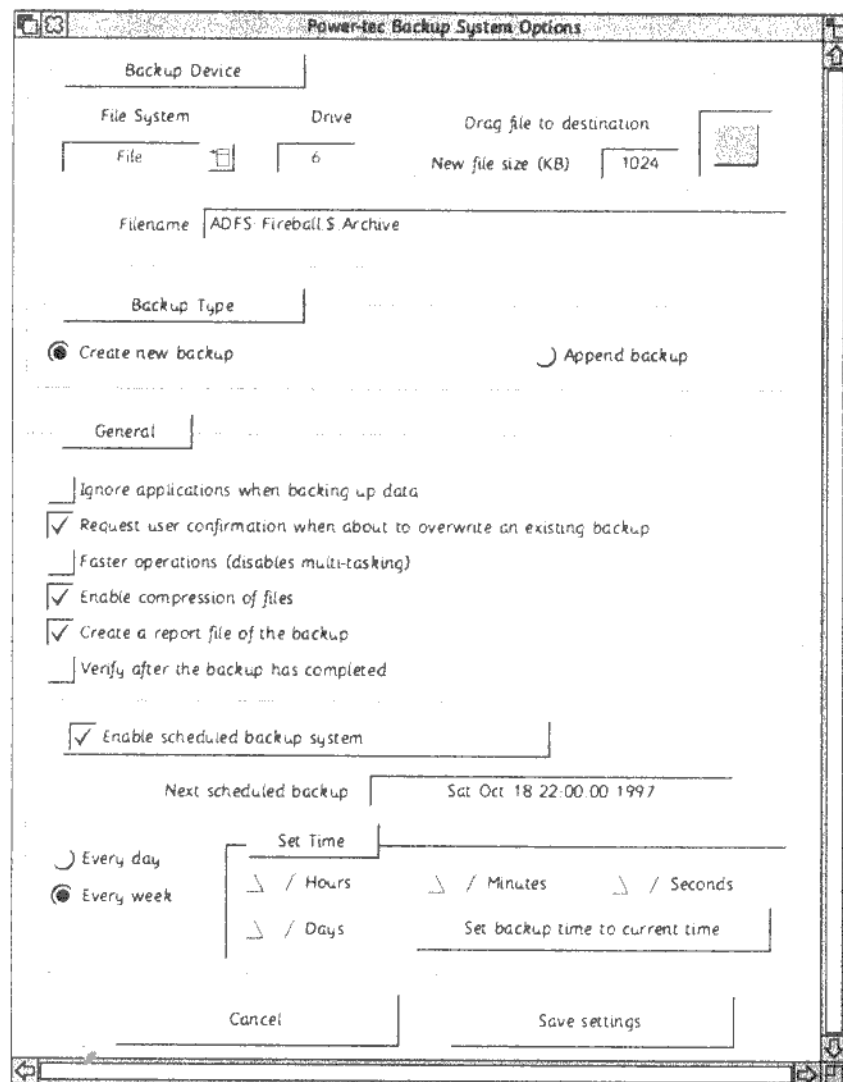
Clicking on 'Options' will open the window overleaf. The backup device should be chosen, using the logical drive number found below its iconbar icon. Note that the logical device number is shown in place of the device name when the 'System name' has been changed to 'Backup'.

Then any or all of the options in the 'General' section of the window may be set. These are self-explanatory, except perhaps the first: if this is selected, only the data files are backed up, which allows considerable time-saving. You would probably wish your primary backup to include both applications and data, so the box would **not** be selected (the default).

Backup may be scheduled at regular times each day or week by clicking on the 'Enable ...' icon, starting at a date and time set in the upper window. The time shown will initially be that previously 'Saved' in !Backup. The computer must be left running and prepared before-hand with !Backup on the iconbar.

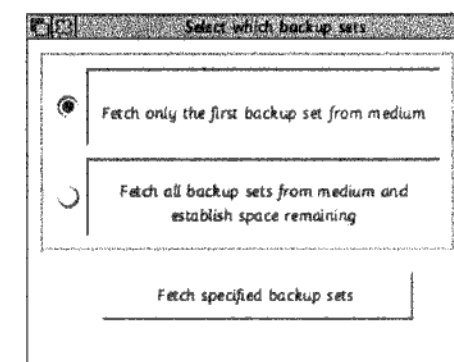
When all the required options have been set click on 'Save settings' to retain them in !Backup, or on the 'Close' icon to use them only for the current session.

Clicking on the 'Set backup time to current time' bar will enter the system time. It would usually be inappropriate to save such a setting.

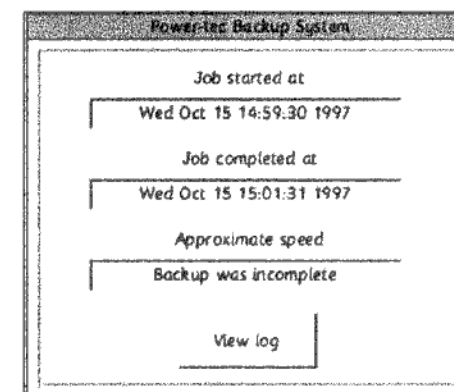


Backup

Clicking on 'Backup' asks the user to choose, and clicking on 'Fetch' then starts the backup:



Details of the several stages of the process are shown, together with a graphical indication of the proportion of the total that has been completed. A prompt will be given to change medium if this is required to accommodate the backup set. When the backup is finished the start and finish times and approximate data transfer rate are shown:



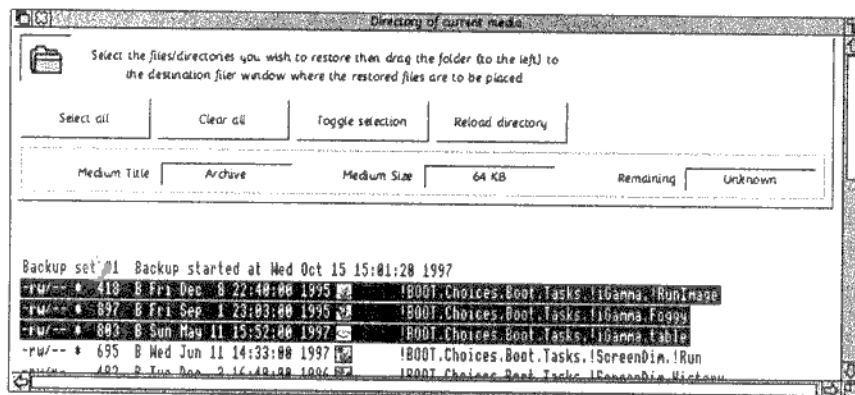
Clicking on 'View Log' will show the log as in an editor window.

Note:

The data transfer speed will vary very considerably, depending on the source and backup media, the computer type and processor speed, the particular interface card fitted, and whether compression, non-multitasking and/or verify are used.

Restore

Clicking on 'Restore' opens a window allowing the choice of the first, or all, backup sets. When 'Fetch specified backup sets' is clicked, some processing takes place, described in a further window, followed by the opening of a large scrollable window showing full details of all the directories and files contained in the backup set(s) chosen. This is the top section of such a window for a small backup set:



Directories and files to be restored are marked using the *Select* and *Adjust* conventions used in filer windows: just 3 files have been chosen in this illustration. If only a few files in a very long list are NOT to be restored, it is convenient to select those files first, and then use 'Toggle selection' to reverse the settings of all of the files. Clicking on a directory will select all the files it contains.

When the choice has been made the directory icon at the top left of this window is simply dragged to the destination filer window and the restore starts.

The display of progress during the restore, and the statistics when it has finished, are similar to those described above for a backup.

Scanners

The SCSIdriver module provides the logical interface between most SCSI scanners and an appropriate Application. Such scanners should be connected externally to the SCSI bus, taking care with bus termination (See Chapter 6). Correct connection can be verified using the *Devices command or 'Drive Information' in !PowerMgr.

The user will need to acquire the appropriate driver for the scanner. Beware that scanners from sources other than Acorn dealers are likely to be provided with software only for DOS or Windows!

9

Desktop Operation



When your computer first starts, there is an opportunity to disable the SCSI system completely by holding down '#'. **Beware** that if your computer is configured to boot from a SCSI disc or it tries to access a SCSI file, the computer will 'crash', which may require the *Reset* button to be pressed.

Before the Boot sequence is started, the configured Power-tec File Systems will be initialised, a Power-On Self Test (POST) will be done and the available Systems will be reported on the startup screen; followed when the desktop starts by a Power-tec startup banner (which replaces the Acorn one).

If the POST fails the message 'POST failed - SCSI System cannot be guaranteed. Call Alsystems Tech Support' will appear. Press any key to continue.

The remainder of this chapter explains the functions of the menu choices available from Power-tec File System icons on the icon bar. Options that are not applicable to the configuration of your computer will be greyed out or may be absent.

SCSI Hard Disc Icons

An icon will be shown for each partition that has been set up on one or more drives. Clicking *Menu* over an icon produces the following choices which may be *Selected* by clicking or moving to the right:

Name Disc

Allows you to enter any valid partition name, confirmed by pressing *Return*. Any filer windows open will close with any name change. Re-open the root directory by clicking *Select* over the partition icon.

Dismount

Dismounts the selected partition, closing its filer window if open. If spindown/eject has been enabled and the drive supports it, the **drive** will spin down, and **all** the affected partition icons will be minimised. A drive may be 'woken up' by clicking *Select* over any of its partition icons.

Format Type

Reports the Format Type of a given partition, e.g. RISC OS, Risc-iX, DOS, etc.,

Drive Info

Reports the details of the selected drive (as also shown by *Devices)

Spin Down

A value (in minutes) may be entered. Provided the drive supports it, the drive will spin down at the end of that period if it has not been accessed in the meantime, its icon will be reduced in size and its name will be greyed out. The timer is reset to zero by a read or write access to **any** of the partitions on the drive. If a time has been set on more than one partition, the shorter time will apply. The drive may be 'woken up' by clicking over any of its partition icons, or by any attempt to read from or write to the drive, eg, by clicking on a file in its open filer window, or from a running application.

Eject Disc

Clicking here will dismount, stop and eject the medium if it is removable. If it is not, the icon is greyed out.

Lock Disc and Unlock Disc

Prevents or allows physical removal of the medium if it is removable; if it is not, the icons are greyed out. Lock Disc overrides and disables the release button on the drive.

Note:

The media for some makes of drive cannot be hardware locked in the drive in this way. In a later firmware release it is intended to provide a means of software protecting the data on such removable media, when they are mounted in a 'foreign' drive.

Share

Enables computers fitted with Acorn Access ethernet cards to share the partition on the network. This option will be greyed-out if no network is present.

Remove Icon

Removes the individual icon from the iconbar.

Return Icons

Returns to the iconbar the icons for **all** partitions for a particular drive. (See *SCSIFilerIcon, p87, if you have removed all the icons!)

Verify

Invokes partition verification, checking for disc errors etc., This potentially lengthy operation is multi-tasking, but it may be aborted by clicking on 'Pause' and then closing the window.

Free

Shows a graphical representation of the total size of the partition, and the space used and free.

CD-ROM Icon

Clicking *Menu* over this icon produces the following choices which may be *selected* :

Dismount

This removes from the computer all information about a CDROM before it is removed from the drive. It does not eject the CDROM from the drive.

Configure

The total number of CD-ROM drives (SCSI, ATAPI and Proprietary (such as Morley Revolution™)) should be shown (Alternatively set in !PowerMgr).

The size of the CDFS buffers may be set or changed. Certain applications may require a particular value; consult your software guides for further information. **The changes to CDFS configuration will come into effect only after a hard reset.**

Volume

Clicking here opens a small window which allows the output volume from an *audio CD* to be set.

Notes:

The Power-tec module CDFSSoftPower in the firmware gives PhotoCD & MPEG facilities. The module supports most SCSI-2, SCSI-3 and ATAPI CDROM drives including the Panasonic PD drive™. Acorn Documentation files for CDFS and PhotoCD are on the Support disc.

*Drivers for a number of early CD drives (CDFSSoftxxxEESEX) are also included in the firmware but they may be *UNPLUGged to save RMA space if not needed.*

10

Command Line Operations

This Chapter lists all the SCSI-relevant commands, their syntax and their action. Note that a brief description (except for the Configure commands) can be obtained by entering ***HELP <Command>**

***SCSI**

Selects SCSI FS as the current filing system.

***HELP SCSI driver**

Lists the following SCSI driver commands. They may be used directly and in !Run files, etc.

***DEVICES**

Lists full details of all SCSI devices found connected to the SCSI bus(es).

***SCSICards**

Lists all the known SCSI cards in the host computer and displays their status.

***SCSIBlock** <addr> <key> <ID> <cdb0> <cdb1> <cdb2> <cdbn>

Issues a raw SCSI Command Descriptor Block to a device via the SCSI_Op SWI. If you do not understand this do not use the command as loss of data is possible.

***SCSIATAPI <n>**

Sets the possible active ATAPI drives:
(n = 0, no drives; n = 1, one Master drive; n = 2, one Slave drive; n = 3, one Master & one Slave drive)

***SCSIReset**

Resets all SCSI buses, leaving all device parameters set to their default values. Returns a message showing the buses' DMA status.

***SCSISyncOn**

Resets all SCSI buses and enables sync transfer on those buses that allow it. [Note. Some drives, eg, SyQuests, do not work properly with sync transfer].

***SCSISyncOff**

Resets all SCSI buses and disables all sync transfer. This is the default setting.

***SCSIDMAOn**

Resets all SCSI buses and enables DMA transfer on all DMA-capable SCSI cards. This is the default when such cards are fitted in backplane slots 0 or 1 of a RiscPC, and when a DMAManager module is active as the SCSIDriver module is initialised.

***SCSIDMAOff**

Resets all SCSI buses and disables DMA transfer on DMA-capable SCSI cards when DMA transfer is operative.

***SCSIIRQOn**

Resets all SCSI buses and enables IRQ-driven operations on SCSI host cards that support them (eg, all Power-tec & Morley cards). This is the default setting. IRQ-driven operations allow true background operation and multi-threading.

***SCSIIRQOff**

Resets all SCSI buses and disables all IRQ-driven operations.

***SCSILock <Drive>**

Prevents removal of the medium from a removable-medium drive

***SCSIUnlock <Drive>**

Allows removal of the medium from a removable-medium drive

***HELP SCSIFS**

Lists all SCSI FS commands. The first four may be used directly. The other eight are stored in CMOS RAM using *Configure (or by !PowerMgr).

***SCSI:SCSIFSStatus** (omit SCSI: if active FS)

Tabulates all the SCSI logical drive numbers, SCSI ID numbers, Partition numbers & Read/Write settings. Lists Directory cache memory allocation (Kb), Buffer size (Blocks), Boot drive number, Spindown state, Host ID number, and Terminator State.

***SCSI:SCSIFSEject <drv>** (Omit SCSI: if active FS)

This spins down the specified drive. The cartridge is ejected if the drive is a removable one.

***SCSI:SCSIFSRaid <drv>** (Omit SCSI: if active FS)

Displays RAID information on the given drive. If the RAID system is not implemented, it returns a message saying so.

***SCSI:ClearCMOS** (Omit SCSI: if active FS)

Resets the SCSIFS settings stored in CMOS RAM to the default values. [NB. This is useful when installing a host card for the first time or when changing its backplane slot].

***CONFIGURE SCSIFSMap <SCSIFS Logical Drive Number> <SCSI ID Number>**

Maps SCSI FS logical drive numbers to SCSI ID numbers and provides for read/write access to be set.

***CONFIGURE SCSIFSAccess <SCSIFS Logical Drive Number> <n> <m>**

Sets the read access <n> and write access <m> (n and m=0/1=Access enabled/Access disabled)

***CONFIGURE SCSIFSDirCache <n>**

Sets the SCSI FS Directory Cache within Filecore to <n> Kbytes. (-1 < n < 256, a value of 32 is usual)

***CONFIGURE SCSIFSBuffers <n>**

Sets the number of 1072-byte buffers for SCSI FS within Filecore to <n>. The setting is invoked only for IRQ-driven operations. A non-zero value will enhance small read operations and all write operations. (-1 < n < 256)

***CONFIGURE SCSIFSDrive <n>**

Sets the SCSI FS logical drive number for booting if SCSIFS is set as the boot filing system (*Configure Filesystem SCSI). If not, Command Line access to SCSIFS will be to this drive until it is altered.

***CONFIGURE SCSIFSSpinDown <n>**

Sets the dismount procedure for all drives. When enabled, a drive will spin down on Dismount (or Shutdown), and the cartridge will be ejected if it is removable, . (n=0/1=Disabled/Enabled).

***CONFIGURE SCSIFSHost <n>**

Sets the SCSI host card SCSI ID number (usually 7 and best not changed).

***CONFIGURE SCSIFSTerminators <n>**

Sets the active termination state on SCSI cards which provide it (eg, Power-tec SCSI-2), or otherwise does nothing. (n=0/1=Disabled/Enabled).

***HELP SCSIFiler**

Lists all available SCSIFiler commands. They may be used directly and in !Run files, etc.

***Desktop_SCSIFiler**

This command starts the filer. *It is for use internally rather than from the command line.*

***SCSIFilerAutoPolling <n>**

Sets the automatic polling of the state of all SCSI devices every 10 seconds. This allows detection of the presence of a drive or of a change of medium. The default value is 1. (n=0/1=No poll/Poll).

***SCSIFilerSpinDown <Drive> <Minutes>**

Sets the time after which the given logical drive will spin down if it has not been accessed in the meantime. The default value is no spindown for all drives. If spindown is required to be set routinely, this command should be added to a boot file. (Do not confuse this configuration command with SCSIFSSpinDown! (see page opposite).

***SCSIFilerIcon <Drive> <n>**

Sets whether or not the icon for a given logical drive is shown on the iconbar. The default value is 1 for all drives. This command is useful to hide a drive, eg DOS-formatted, which should not be accessible from the desktop. (n=0/1=No icon/Icon).

***SCSIFilerLock <Drive>**

Prevents removal of the medium from a removable-medium drive

***SCSIFilerUnLock <Drive>**

Allows removal of the medium from a removable-medium drive

***HELP CDFSSoftPower**

Lists the commands for the Power-tec generic CDFS drivers. They may be used directly or in !Run files, etc. Other CDFS commands are documented on the Support disc.

***Power_tec_CDFSStatus**

Displays, and performs a diagnostic check on, all the CD drives that CDFSSoftPower is aware of and reports on each. (A disc must be in the drive and have been accessed by CDFS).

Reports 'Diagnosing OK' or quits.

***Power_tec_CDFSFast**

Stops CDFSSoftPower making the test below, thus enhancing its performance at the expense of it not always being aware of a disc change. This command also clears the drive's internal cache - useful for some older drives - and may be included in a boot file.

***Power_tec_CDFSNormal**

Allows CDFSSoftPower to 'test unit ready' to check the drive's current state. This is the default.

Note that the well-known commands provided by Filecore and Fileswitch also operate on the SCSI FS. A few, such as *Dismount, *Map, *CheckMap, *Free and *Shutdown may be useful.

11

Tape Streamers

Introduction

This chapter is included to describe differences in the use of the Power-tec SCSI systems when a tape streamer is used as a backup device. (It does **not** describe the Alsystems ATAPEFS system, though that also uses !Backup).

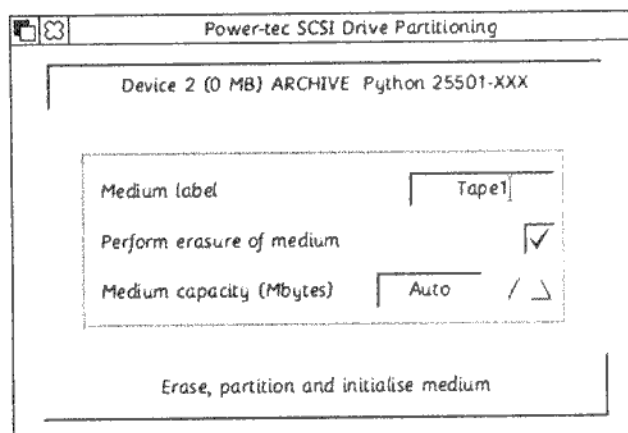
As far as installation of a SCSI tape streamer and its connection to the SCSI bus are concerned, there is no difference from the installation of a removable- or fixed-medium hard disc. It is just another SCSI device, and the relevant parts of Chapters 2 - 6 should be studied.

In contrast with discs ('Direct Access' devices), where any point on the storage medium is immediately accessible to the read/write heads, a tape (a 'Sequential' device) has to be wound lengthwise to position the required part of the medium at the read/write heads. Thus tapes are much slower than discs for random access, but ideal for storing large amounts of data in a continuous stream, which is why they are used for backup.

Use of !PowerMgr

Efficient use of tape storage needs a different strategy from discs for erasing, formatting and partitioning. The only section of !PowerMgr which needs to make separate provision for these processes is 'Create Partitions' (only 1 partition needed), p49.

When a device that is selected in the window illustrated on p.50 is 'Sequential' (as opposed to 'Direct Access'), a window different from the one shown on p.51 opens:



The SCSI ID number for the device together with the capacity if known by the system (see below), vendor and model information are displayed.

The default 'Medium label' may be accepted, or a new name can be entered.

The tape will be erased before any formatting is done if the 'Perform erasure ...' button is ticked. This could be useful to clean a tape completely for security reasons. Erasure involves a run of the entire tape and rewind, and could take a long time.

The capacity of the tape in Mb should be entered in the 'Medium capacity' icon, if it is known. If 'Auto' is left in the icon, !PowerMgr will read the tape from end to end to find its size. Just as a hard disc may be partitioned to a size less than its full capacity, an estimated smaller value may be entered here if the tape capacity is known only approximately. You may erase and enter a value from the keyboard; or use the 'Increase/Decrease' icons located to the right of the value (Hold down *Shift* or *Ctrl* respectively for 10Mb or 100Mb jumps).

Clicking on the 'Erase, partition and initialise medium' bar will start the process. Alternatively, the process may be abandoned by clicking on the 'Close' icon. If erasure has not been selected the word 'Erase' is omitted.

A new window will then open showing the various stages of these processes, and their progress in graphical form. The time taken will be very much longer than with hard discs: hours rather than minutes.

When the process is finished control will return to the main !PowerMgr window.

Use of !Backup

There is little difference between using tape streamers and hard discs in !Backup, as described in Chapter 8, apart from the speed.

Tapes always have a 'System Name' of 'Backup'. A backup set may comprise several tapes; if the data will not fit the first tape a prompt for another will be given. Each tape has, at the start, an index of the files it contains.

Because of the much slower performance with tape you may wish to make more use of the scheduling options for backing up.

Restoring files will also be much slower than from a hard disc. The index on each tape will be scanned for the files required and the tape will be wound/re-wound to the correct points. If the backup set comprises multiple tapes, the files required may not be found: you will then be prompted to insert the next tape of the set.

Backup tapes produced by an earlier Power_tec utility, !Streamer, can be read and restored by !Backup.

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NOTES PC CARD USE:

Configure for use in Windows '95.

- Cartridge in Drive first
- !PC application. Configuration with PC Card
into I/O Bar
- "Drive" Drive/Partition
Pathname - SCSI::5.# to enter
- My Computer



power-tec

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